**Please,** start to read our progress from the next page.

Today, we have worked on chap 1 and chap 2. We for sure tried to collect some mistakes that you have mentioned early in the morning. Although we might have not reached the level you wish us to be, but we would like you to have a look on how we are doing and we will be happy to reflect, refine and make a notable progress based on your good comments.

Thanks.

**CERTIFICATE**

This is to certify that the project work entitled “UR CONSULTANCY SERVICES MANAGEMENT SYSTEM” is a record of the original copy of work done by **Patrick ISHIMWE (Ug: 217085547), Jean Paul NISHIMIRWE (Ug: 217122752),** and **Emmanuel NSANZIMANA (Ug: 217066437)** in partial fulfillment of the requirement for the award of Bachelor of Science Degree in Computer Science of College of Science and Technology, during the academic year 2019-2020.

Submitted for the project examination held at College of Science and Technology on …. /…./….

**DECLARATION**

We, Jean Paul NISHIMIRWE, Patrick ISHIMWE and Emmanuel NSANZIMANA declare that the content of this final project entitled “UR CONSULTANCY SERVICES MANAGEMENT SYSTEM” is our original work intended to serve as part of the fulfillment of the requirements for the award of a Bachelor degree in Computer Science. We hereby confirm that to the best of our knowledge, this work is original and has never been presented elsewhere for any academic qualification. We also declare that it has not been previously or concurrently submitted for any other degree or award at College of Science and Technology-University of Rwanda. Any contribution made to the research by others is explicitly acknowledged in the report.

Kigali on, /…. / 2020

**DEDICATION**

Wededicate this research paper to almighty GOD, our families and our parents, colleagues, and friends who helped in preparing this research paper. Without them we are powerless. Also we devote our work to respectable and honorable lecturers of ours who taught and supported us in developing our personality as a competent profession.

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**ABSTRACT**

Developing systems that digitalize the services provided by special offices and other highly invaluable places is an increasing concern in Rwanda to centralize services to all people and make it easier to people to get services. The purpose of the developed system is allow easy management of activities done in UR consultancy Bureau and digitalize some of the services provided while working on a consultancy. In addition, the system provides a special communication way between consultants working on the same task and with consultancy Bureau leaders. Using interview, documentation, and observation, needful information were gathered to be used to develop a helpful system that is capable of solving main problems encountered by UR consultancy Bureau while doing their assigned tasks and meet expectations on time. The services provided by UR consultancy was found to play the greatest role in University of Rwanda and therefore needed to be digitalized, and the best way to do so was developing a smart web based system that may allow services to be provided everywhere and every time. This developed system definitively is able to allow the UR consultancy Bureau to store their important data and useful information even as archive, quickly retrieve and access important information about any chosen part of their work including consultancy, easy communicate with consultancy, provide urgent services to consultants and interestingly helpful in taking some decisions and generate reports based on different criteria.

**Chapter I:** **General introduction**

**1.1 Introduction**

This first chapter highlights explanations in details about background of the study, problem statement, the objectives, organization of the study, the scope of the project and conclusion.

**1.2 Background of study**

With the rapid increase in information technology in all aspects of our real life, many services are intended to be improved because take an increasing important in our everyday life where all activities are computerized and each can get different information by using internet, intranet or mobile phone for organizations, thus; the inclusion of technology in the existing system of UR consultancy services, where it was done by recording all data about consultants, contracts with clients and consultants, payment done by consultancy bureau to the consultants on papers , will facilitate to the system by storing data on digital store where it can be accessible in easy way, updated, and way of monitoring and managing will be easily. And also computerizing UR consultancy services will improve managements and coordination of its activities by developing system which will replace all paper-based activities.

**1.3 Problem Statement**

The UR-Consultancy Bureau coordinates and manages consultancy activities across all its campus and it becomes difficult to operate without any Management system in place considering the required consistency, accuracy and analysis of information recorded, stored and retrieved. More to that the access of non-system based information is always time, energy and money consuming at times in case the UR-Consultancy Bureau or consultants situated in different campus at times need to go through a long process of waiting for some key information that they would otherwise have at their disposal.

The existence of Automated Management System in the UR-Consultancy Bureau therefore, will make the service delivery and communication between different stakeholders such as staff/consultants; Companies that UR pattern with; UR Management among others will all find it to be very effective and efficient.

**1.4 Project Objectives**

**1.4.1 General objective**

To develop web based system which help consultancy services across different colleges and campus of UR be managed effectively and efficiently

**1.4.2 Specific Objectives**

The proposed system specifically aims to:

* To record a new consultancy that University of Rwanda is going to work on.
* To record a contract information between University of Rwanda and individual consultant.
* To generate report about consultancy activities done in the past.
* To allow retrieve of different information about activities that are stored and select information based on different criteria such as a particular college, school or department.
* To provide a special communication mean between consultancy members themselves and with consultancy leaders by using the chatting system available in the system.
* To allow consultants update their profiles information including specifications and education that may be based on while selecting the right consultant for a new consultancy.
* To provide a good designed certificate to the consultants that shows all his main activities s/he has done as a UR consultants including all consultancies in which s/he participated.
* To store all archived information about UR Consultancy Bureau activities and services for future use.
* To design UR Consultancy Services Management System.

**1.5 Scope of Project**

Due to the time constraints and work complexity, our project is limited to the main activities done in UR consultancy bureau, such as designing database for system, recording, updating, deleting data about consultants and consultancies, clients information and contract’s details; generating reports, searching based on different criteria, printing and exporting generated report as excel sheet.

**Chapter 2 Literature Review**

**2.1 Introduction**

This chapter provides and brief explain the key terms that are used during our whole work are done. It gives and overview of existing system and how to it works that are crucial to have knowledge about it, in order to understand the general activities done by system especially the purpose of the system which is develop, a system that handle the service provided by consultancy bureau services.

**2.2** **Key terms definitions**

**2.2.1 Consultancy**

A consultancy is a professional practice that gives expert advice within a particular field. A consultant is the one to provide that service.

**2.2.2 Consultant**

A consultant is a professional who provides expert advice in a particular area such as business, education, law, regulatory compliance, human resources, marketing, finance, health care, engineering, science, security, or any of many other specialized fields.

**2.2.3 Client**

Client refers to the person, company, organization or any institutions that recruit that consultant to consult, their system or their businesses.

**2.2.4 BDCS**

BDCS refers to the persons that have ability of managing consultants on the same campus. This person are able to control every consultants in the campus he/she belongs to.

**2.2.5 Admin**

A person responsible for managing, controlling every activities done within the system.

**2.2.6 System**

System is an organized collection of parts that are highly integrated to accomplish an overall goal. Is set of interacted units with relationship among them in order to complete specific task [1].

**2.2.7 Data**

These are facts, image or sounds that may or may not be pertinent or useful for a particular task.

**2.2.8 Database**

Database is a structured collection of data items stored, controlled and accessed through a computer based on predefined relation-ships between predefined types of data items related to a specific business, situation or problem.

**2.2.9 A Table**

Table in relational database and SQL is collection related data held in a table format within database, it set of data elements using model pf vertical columns and horizontal rows and form cell when column intersect with rows, every table have specified columns but rows increase as data stored in table.

**2.2.10 Records**

Records refers to the data stored in database tables. Every single row in tables mean record.

**2.2.12 Attribute**

Attribute is property or characteristic of any entity. Each entity must have it own attribute that describe it.

**2.2.13 Entity**

Database entity is a thing, person, place, unit, object or any item about which the data should captured and stored in the form of properties, workflow and tables.

**2.2.14 MySQL database**

MySQL database is an open source Relational Database Management System (RDMS) that uses structured Query (SQL) [3].

**2.2.15 XAMPP**

XAMPPis a free, and an open source cross-platform web server solution stack developed by apache friends. It contains apache HTTP Server, Maria DB Database, interpret script written in PHP and Perl [4].

**2.2.16 PHP**

PHP stands for Hypertext Preprocessor, which is used open source general-purpose scripting language that is especially suited for web development and can be embedded into HTML. Also is powerful tool for making dynamic and interactive web pages [5].

**2.2.17 primary keys**

This is set of the columns that can be used to identify or access a particular tuple tuples in database table [2].

**2.2.18 foreign keys**

Foreign keys is set of attributes in a database tables that refers to the primary key of another tables. This is important key in relation of database tables, it link two or more tables [2].

**2.3 Overview of the existing consultancy system**

Presently, UR consultancy Bureau has not any computerized system can be used to perform the task assigned accurately. They still use a traditional way of storing information which is paper based system that may be the causal factor of other deep inconsistency of the performance of the system. Moreover, the existing system delayed some services’ results due to its cheap service providing process. For example, for any urgent case, retrieving, organize and generate any needful information or report about both the archived and in progress consultancies’ information, it was not easy at all, because it required looking at different boring papers tried to arrange in order but still making annoying level of performance to both UR consultancy bureau worker and someone who request a service. It is not to mean the new system can totally make paper based system useless or no longer needed again, but it has potential to store basic information about the activities done to provide interactive mean to users of performing their tasks very easy and accurately. All these unfriendly requirements and annoying performance of the existing paper based system alone led to the thoughts of thinking about this advanced management system.

**Chapter 3 Project methodology**

**3.1 Introduction**

This is one of the crucial chapter that focuses on different methodology approach, different data collection techniques, software development methodology and description of proposed system, feasibility study and data analysis techniques.

**3.2 Methodology Approaches**

This is an approaches that is a strictly defined combination of logically related practices, methods and processes that determine how best to plan, develop, control and deliver a project throughout the continuous implementation process until successful completion and termination. It is a scientifically-proven, systematic and disciplined approach to project design, execution and completion.

The purposeof methodology is to allow for controlling the entire management process through effective decision making and problem solving, while ensuring the success of specific processes, approaches, techniques, methods and technologies. Typically, a methodology provides a skeleton for describing every step in depth, so that a project manager will know what to do in order to deliver and implement the work according to the schedule, budget and client specification.

**3.2.1 Qualitative approach**

Qualitative approach is research method that focuses on obtaining data open-ended discussion and conversational communication, such as interviews, observation, and questionnaires.

**3.2.2 Quantitative approach**

Quantitative approach is research method that deals with quantifying and analyzing variables in order to get results. It involves the utilization and analysis of numerical data using specific statistical techniques to answer different question like how, how many, how much and who, when [6].

**3.3 Data collection techniques**

Data collection is process of gathering information and filtering information that are needed to implement information satisfy user’s needs.

**3.3.1 Interview**

It is a technique of collecting information using oral method. One person (researcher) called interviewer asks bunch of questions to another person called interviewee for the purpose of collecting information.

**3.3.2 Documents analysis**

It is a form of qualitative research in which documents are interpreted by the researcher to give voice and meaning around an assessment topic. The researcher gain information from reading, analyze and interpret data from documents.

**3.3.3 Observation**

It is the process in which one or more persons observe what is occurring in some real life situation and they classify and record relevant activities according to some planned schemes.

**3.4 Software Development Method**

**3.4.1 Agile Methodology**

During the development of UR consultancy services system, agile methodology will be used.

Agile methodology is group of software development methods that are based on iterative and incremental development. Iteration are used and are required for efficient product deliver.

adaptive

planning, iterative & evolutionary development, rapid and

flexible response to change and promote communication

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According to Layman, **Agile Software Development** is a **methodology** that ensures agility, flexibility and adaptability during the development and maintenance of software.

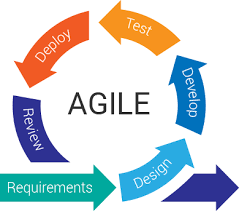


Figure 1: Agile Model.

**3.4.2 Advantages of Agile**

* Agile is very realistic approach to software development.
* It promotes team work and cross training.
* Functionality can be developed rapidly and demonstrated.
* Easy to manage.
* Little or no planning required.
* Suitable for fixed or changing requirements.
* Resource requirements are minimum.
* Good model for environments that change steadily
* Gives flexibility to developer team.

**3.4.3 Disadvantages of Agile**

* Difficult measurements.
* Too much time may be devote to any single, small feature.
* Dose not scale well to large projects, as numerous iterations are need to complete desire functionality.

**3.4.4 Requirement gathering and analysis**

This stage of requirement gathering we focuses on collecting data by using different techniques of data collections such as questionnaire, interview, observation, and documentation to collect data related to consultancy and consultants. Not only that we analyze those that data by using different methodologies where unnecessary data removed and also analyzing existing manual system in order to know how it works, challenges and what are required in terms of cost, practically and technology, to see if it is feasible for institution or organization. At the end of this stage we documents all necessary data and activities and write story for every single task.

**3.4.5 System designing**

After having all necessary data from requirement stage we define and design all user interfaces and also defines all components, modules, and database schema for system and interconnection between them to satisfy requirements.

**3.4.6 Development or implementation**

Once requirements has defined, the work begins. Designers and developers have started to work on their projects for the aims of meeting users requirements or deploy a working product. It includes minimum functionality.

**3.4.7 Testing**

In this phase, every single codes written and interfaces designed done in implementation phase were tested and examined for system performance and look for the bugs.

* + 1. **Deployment of system**

After all works done, at this phase the system is ready to be deployed and start to be used by users as it was designed for.

* + 1. **Review or Maintenance**

This phase come after deployment, where it comes to fix any bugs or any issues appear in deploying phase.

**3.5 Requirements of proposed system**

Requirements are those software and hardware and other tools that used to accomplish whole work of designing and developing system.

**3.5.1 Software requirements**

* XAMPP is a free and open source cross-platform web server solution stack package, consisting mainly of the Apache HTTP server, MySQL database, and interpreters for scripts written in the PHP and Perl programming.
* Web Browser such as Chrome, and Mozilla Fire fox.
* Text Editor (VS code).

**3.5.2 Hardware requirements**

* Computers with I5 processor, 4GB of RAM

**3.5.3 Computer programming**

* PHP
* Script Languages, such JavaScript, JQuery and Ajax.
* Markup Languages, HTML and CSS as stylesheet Languages.

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